

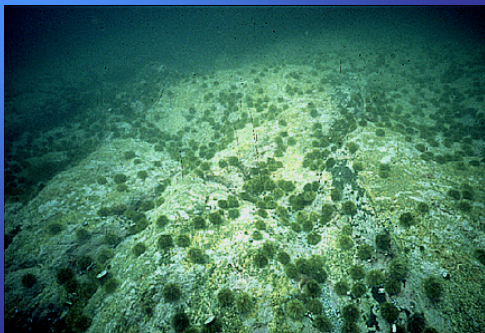
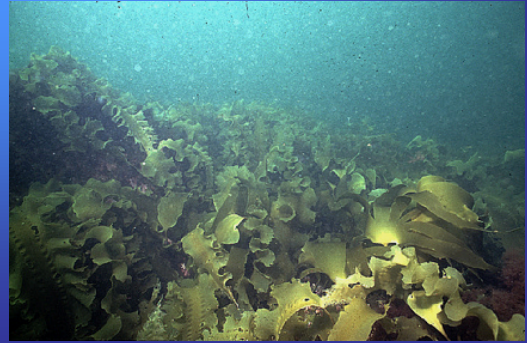
# CHANGING DISTRIBUTION PATTERNS IN THE INVASIVE ALGA *Codium fragile* ssp. *tomentosoides*: INTERPLAY OF HERBIVORES AND HYDROGRAPHIC CONDITIONS IN THE GULF OF MAINE

Changing Patterns of Distribution

Hydrographic Conditions

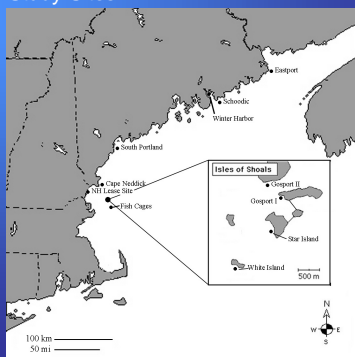
Herbivores

Epibiont Acquisition

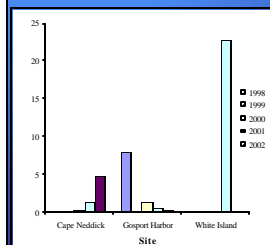


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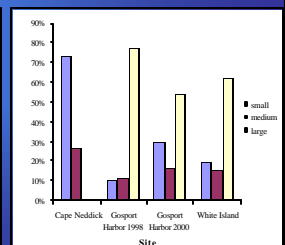
## Map of Study Sites



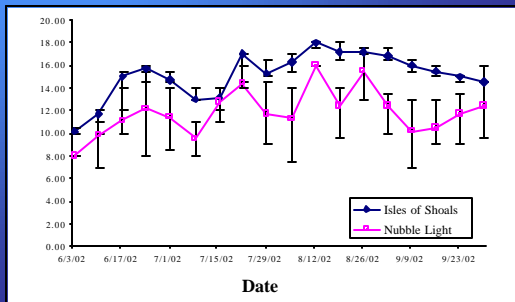
## Codium Densities/m<sup>2</sup> Over Time



## Codium Population Structure



## Average Weekly Summer Temperatures 2002



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## Placida Choice

Small *Codium*

19% (47)

Large *Codium*

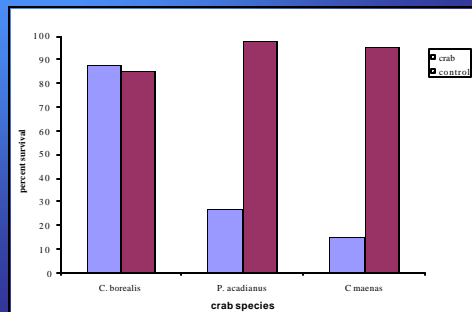
81% (201)



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## Crab Predation on *Placida dendritica*





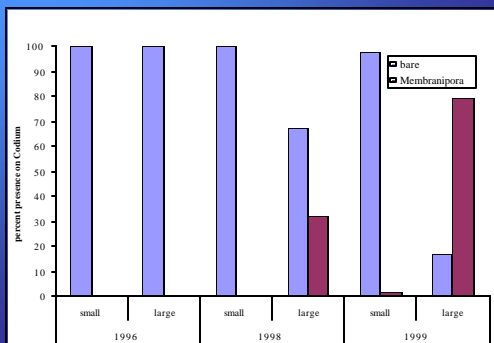
### *Tautoglabrus adspersus*: Predation on *Placida dendricata*

Treatment	Number	Result
Offered alone	1	observed and ignored
Offered with <i>Mytilus</i> tissue	3	observed and ignored
Offered on <i>Mytilus</i> tissue	9	all ingested - 3 eaten, 6 rejected

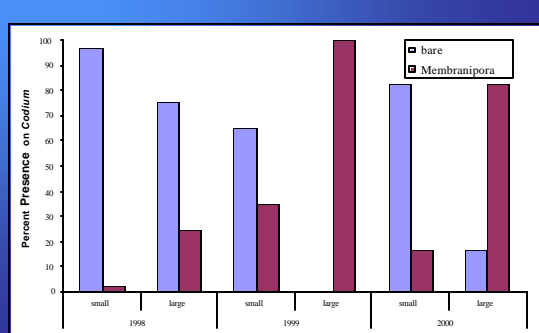
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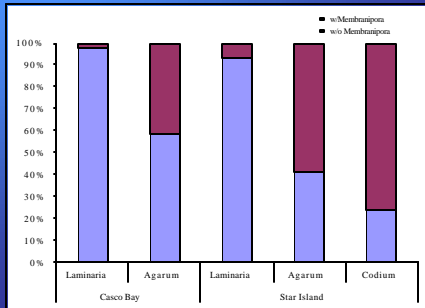
### Membranipora Presence on *Codium* (White Island)



### Membranipora Presence on *Codium* (Star Island)



## *Membranipora* Presence on Canopy Species

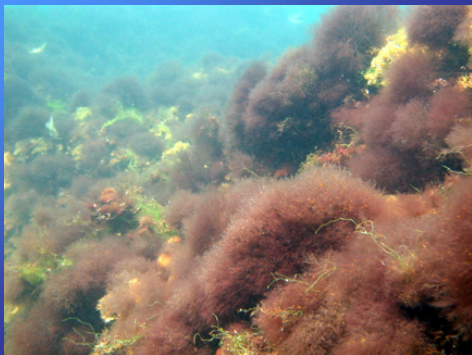


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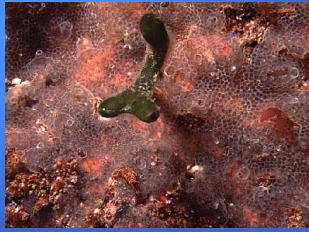
## Conclusions

- *Codium* is expanding its range
- Summer thermal instability from coastal upwelling is slowing the spread
- Herbivores are restricting success in quiet conditions
- Epibiont acquisition is higher than found on *Laminaria* species and impact is yet to be determined

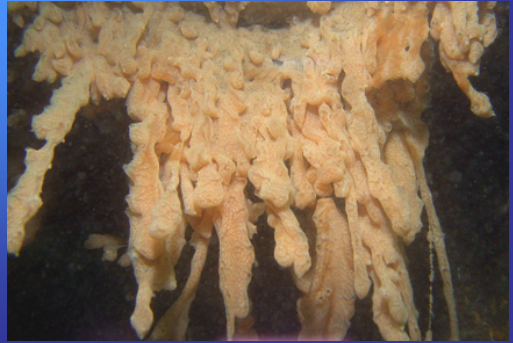
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